Trend Study 19A-6-97

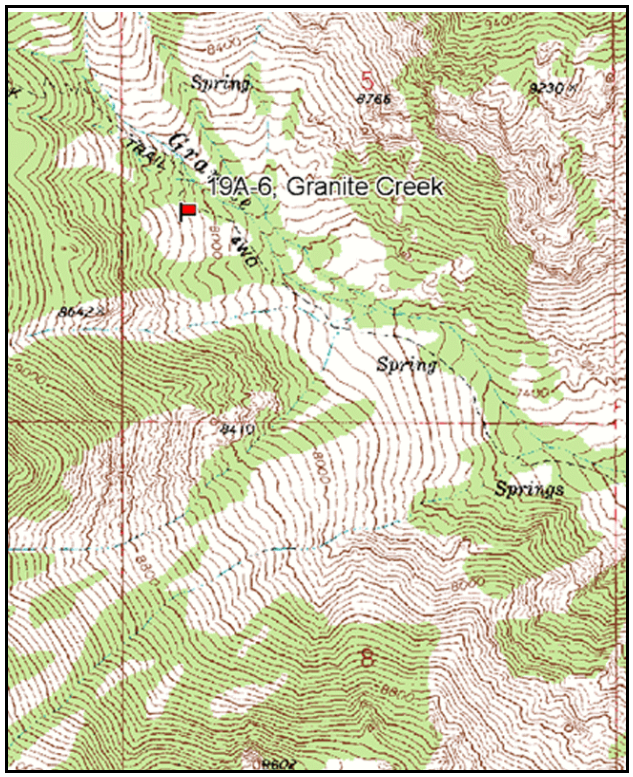
Study site name: Granite Creek . Vegetation type: Big Sagebrush-Grass .

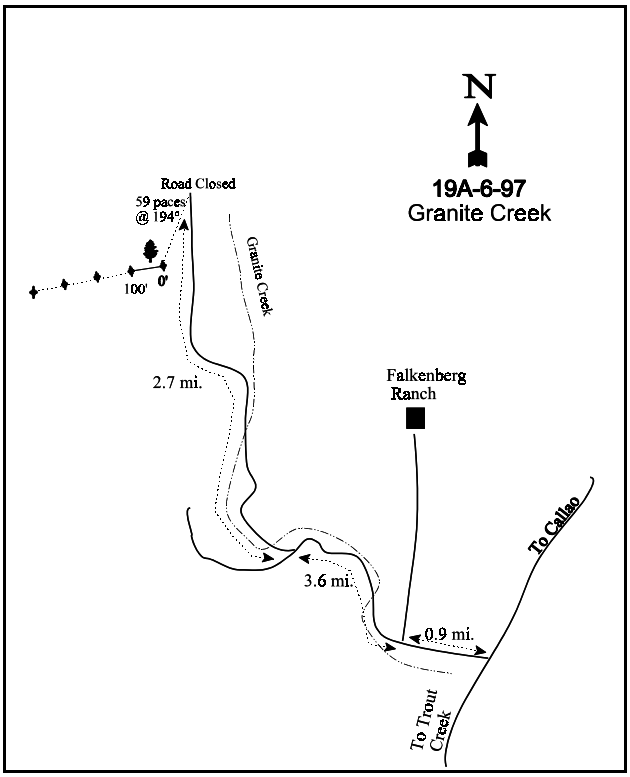
Compass bearing: frequency baseline 246 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From the junction of the Snake Valley Road and the road which runs west towards Granite Creek, proceed west up Granite Creek Canyon for 4.50 miles to an intersection. Turn right, crossing Granite Creek and proceed 2.70 miles up the canyon to the end of the road (road has been closed). From the end of the road the 0-foot baseline stake is 59 paces away in a southwesterly direction (194 degrees M), near a single pine tree. The study is marked by green steel "T" fenceposts approximately 12 to 18 inches in height.





Map Name: Ibapah Peak

Diagrammatic Sketch

Township 12S , Range 18W , Section 5

GPS: NAD 27, UTM 12S 4409806 N 251042 E

DISCUSSION

Granite Creek - Trend Study No. 19A-6

***SUSPENDED - This site was not read in 2002 due to access problems. The site now lies within a BLM wilderness study area and access to the site has been restricted. The site narrative and data tables are included from the 1997 report.

This study samples deer summer range near the head of Granite Creek on a moderately steep (45%), northeast facing slope. The study site is in a mountain big sagebrush-grass range type, surrounded by mixed conifer and aspen at an elevation of 8,100 feet. Granite Creek, which runs within a few hundred yards of the site, provides a reliable water source for the area. In 1989, there was evidence of light summer and fall use by deer, but no sign of use by elk or bighorn sheep. Ants were found widespread on lupine and sagebrush in association with aphids which were impacting many plants. Evidence of past mining activity exists in the lower part of the canyon, but does not interfere with the study site. Elk and deer pellet groups were noted throughout the site in 1997, but only deer pellet groups were sampled within quadrats.

Soils are the Flygare (cobbly loam) and Cabollo (loam) variety with granitic parent material. Rock outcrops and steep slopes are characteristic of these soil types. Soils are relatively shallow with an effective rooting depth of about 10 inches. Soil temperature averaged about 52°F at a depth of 14 inches. Soil textural analysis indicates it to be a loam with a slightly acidic pH of 6.1. There was no erosion apparent in 1997.

The key browse species on the site is mountain big sagebrush. Density in 1983 was estimated to be 2,733 plants/acre with 33% of the population exhibiting poor vigor, and 40% of the population classified as decadent. In 1989, the estimated density was 3,465 plants/acre. The percent of the population exhibiting poor vigor declined to 7% with percent decadence remaining similar at 42%. In 1997, the estimated density dropped to 2,440 plants/acre, the lowest estimate from all surveys. Almost all the loss in density can be explained by the number of dead plants in the population (820 dead plants/acre). The percent of the population classified with poor vigor increased to 24%, while percent decadency declined to 28%. Also, 38% of the decadent plants were classified as dying. The 1997 dead to live ratio was 1:3 (25% of the plants were dead). In 1997, the Oregon grape density was estimated to be 31,480 plants/acre. These plants average only about 4 inches in height and provide little forage. Subdominant shrubs include mountain snowberry, stickyleaf low rabbitbrush, grey horsebrush, and slenderbush eriogonum. Utilization of these species is uniformly light and none show evidence of any significant change in numbers or dominance.

Herbaceous composition and density is one of the key habitat factors at this site for forage and ground cover. Both grass and forb composition include a variety of species that together provides satisfactory ground cover and a source of succulent summer forage. Ten species of grasses were encountered in 1997. Sheep fescue was the most abundant and significantly increased in nested frequency since 1989. Muttongrass was the only other grass to show a significant increase in nested frequency in 1997. Several grass species have significantly decreased in nested frequency including slender wheatgrass, fringed brome, and Nelson's needlegrass. As reported in 1983, several grass species are increasers which reflects past livestock use, but currently none are especially abundant or indicative of poor range condition. Overall, grass sum of nested frequency appears to be stable with only slight change from year to year.

Forb composition consists of a wide variety of perennials and a few annuals and biennials. Palatability and preference vary greatly, with little evidence of utilization in 1997. It was reported in 1983 that some of the forbs showed utilization when the site was surveyed. In 1989, it was noted that utilization was light on forbs and undetectable on grasses. The more abundant forbs include wild onion, paint brush, sego lily, common stickseed, lupine, penstemon, lambstongue groundsel, and tuber starwort. Sum of nested frequency for perennial forbs has declined since 1989, but only slightly.

1983 APPARENT TREND ASSESSMENT

Both the soil and vegetation trends appear stable. However, this is a sensitive site that could easily decline if subjected to heavy livestock use. Ground cover is adequate but not outstanding. Forage diversity is good but includes a number of increaser species of low to medium value. More intensive livestock use would probably provide a competitive advantage to these species. Deer use is currently insignificant.

1989 TREND ASSESSMENT

The soil trend is slightly improved with abundant vegetation cover to keep erosion in check. The browse trend is stable. The mountain big sagebrush population has changed very little since 1983. In an area where summer range is the limiting factor for big game species, this site displays exceptional forage diversity and production with a limited amount of use. The herbaceous understory trend is upward as a variety of grasses and forbs thrive in the understory. This upward trend will most likely continue if livestock grazing is eliminated in the area.

TREND ASSESSMENT
soil - slightly up (4)
browse - stable (3)
herbaceous understory - up (5)

1997 TREND ASSESSMENT

The soil trend is stable. Percent bare soil decreased to 6% and no erosion is apparent at this time. Fifty percent of the vegetation cover is contributed by the herbaceous understory, giving excellent protection from soil erosion. It appears that the mountain big sagebrush population has been thinning itself since the previous survey of 1989. There is a trend showing the plants are increasing in height and crown. Percent decadence has declined from 42% to 28%, but the percentage of decadent plants classified as dying has now increased to 38%. With the decline in density and increase in decadent plants classified as dying, the trend would be slightly down. The herbaceous understory trend is also slightly down. The perennial herbaceous understory sum of nested frequency has gone down for both grasses and forbs since 1989. Diversity remains high with no one species dominating the site.

TREND ASSESSMENT
soil - stable (3)
browse - slightly down (2)
herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --
Herd unit 19A, Study no: 6

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'97	'83	'89	'97	'97
G	Agropyron spicatum	1	-	5	1	-	3	.16
G	Agropyron trachycaulum	$_{c}$149	$_{b}$109	$_{a}$40	65	48	18	.22
G	Bromus ciliatus	$_{a}$21	$_{b}$46	$_{a}$20	10	20	9	.26
G	Festuca ovina	$_{a}$36	$_{a}$52	$_{b}$207	17	21	69	9.96
G	Hilaria jamesii	-	-	9	-	-	3	.04
G	Poa fendleriana	$_{a}$11	$_{a}$16	$_{b}$47	5	8	22	.65
G	Poa pratensis	115	129	97	41	44	35	1.67
G	Poa secunda	$_{a}$3	$_{b}$18	$_{ab}$11	1	10	5	.05
G	Stipa columbiana	$_{b}$89	$_{c}$155	$_{a}$18	41	57	8	.19
G	Stipa comata	-	-	5	-	-	3	.01
G	Stipa lettermani	32	15	44	14	7	17	.67
Total for Annual Grasses		0	0	0	0	0	0	0
Total for Perennial Grasses		457	540	503	195	215	192	13.92
Total for Grasses		457	540	503	195	215	192	13.92
F	Achillea millefolium	$_{ab}$7	$_{b}$12	$_{a}$-	2	6	-	-
F	Agoseris glauca	$_{a}$6	$_{b}$21	$_{a}$6	2	10	3	.01
F	Alyssum alyssoides (a)	-	-	3	-	-	1	.00
F	Allium spp.	$_{a}$47	$_{a}$45	$_{b}$77	23	26	41	.24
F	Arabis spp.	-	2	1	-	1	1	.00
F	Astragalus tegetarius	2	-	-	1	-	-	-
F	Aster spp.	-	-	-	-	-	-	-
F	Astragalus spp.	$_{a}$3	$_{a}$3	$_{b}$13	1	1	9	.10
F	Castilleja angustifolia	$_{a}$3	$_{a}$-	$_{b}$15	2	-	7	.27
F	Castilleja linariaefolia	$_{a}$-	$_{a}$-	$_{b}$60	-	-	28	1.37
F	Calochortus nuttallii	$_{a}$-	$_{b}$18	$_{b}$32	-	9	14	.07
F	Castilleja spp.	$_{a}$-	$_{a}$-	$_{b}$27	-	-	12	.33
F	Collomia linearis (a)	-	-	61	-	-	32	.16
F	Comandra pallida	$_{a}$2	$_{a}$-	$_{b}$25	1	-	12	.33
F	Collinsia parviflora (a)	-	-	81	-	-	32	.21
F	Crepis acuminata	-	-	1	-	-	1	.01
F	Cruciferae	-	2	-	-	1	-	-
F	Cynoglossum officinale	5	-	-	3	-	-	-
F	Delphinium andersonii	$_{a}$-	$_{b}$13	$_{ab}$5	-	7	4	.13
F	Delphinium occidentale	$_{ab}$3	$_{a}$-	$_{b}$9	2	-	5	.22
F	Erigeron spp.	4	-	-	2	-	-	-
F	Erigeron jonesii	$_{a}$-	$_{b}$14	$_{a}$3	-	7	2	.01
F	Hackelia patens	$_{b}$121	$_{b}$145	$_{a}$58	53	62	29	.40

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'97	'83	'89	'97	'97
F	Heuchera parvifolia	$_{b}$31	$_{a}$-	$_{a}$1	14	-	1	.03
F	Hydrophyllum spp.	-	6	-	-	4	-	-
F	Lappula occidentalis (a)	-	-	17	-	-	7	.03
F	Linum lewisii	-	-	3	-	-	1	.00
F	Lomatium spp.	-	-	3	-	-	1	.00
F	Lupinus caudatus	$_{a}$46	$_{b}$96	$_{b}$114	21	48	53	4.15
F	Machaeranthera canescens	$_{b}$17	$_{ab}$12	$_{a}$2	10	7	1	.03
F	Mertensia spp.	-	-	6	-	-	4	.16
F	Microsteris gracilis (a)	-	-	10	-	-	5	.02
F	Penstemon spp.	$_{a}$25	$_{a}$11	$_{b}$47	10	7	21	.91
F	Plantago spp.	-	1	-	-	1	-	-
F	Polygonum douglasii (a)	-	-	75	-	-	31	.15
F	Potentilla spp.	-	2	4	-	1	2	.01
F	Senecio integerrimus	$_{a}$8	$_{b}$79	$_{a}$18	6	41	8	.11
F	Sedum lanceolatum	-	-	6	-	-	2	.02
F	Silene spp.	-	-	1	-	-	1	.00
F	Solidago spp.	2	3	-	1	1	-	-
F	Stellaria jamesiana	$_{a}$-	$_{b}$180	$_{b}$183	-	68	63	2.87
F	Taraxacum officinale	$_{a}$5	$_{b}$36	$_{c}$17	3	21	9	.15
F	Tragopogon dubius	-	5	-	-	3	-	-
F	Unknown forb-annual (a)	-	-	4	-	-	3	.01
F	Viola spp.	$_{a}$-	$_{c}$78	$_{b}$16	-	43	9	.07
F	Zigadenus paniculatus	-	2	-	-	2	-	-
Total for Annual Forbs		0	0	251	0	0	111	0.60
Total for Perennial Forbs		337	786	753	157	377	344	12.07
Total for Forbs		337	786	1004	157	377	455	12.67

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Herd unit 19A, Study no: 6

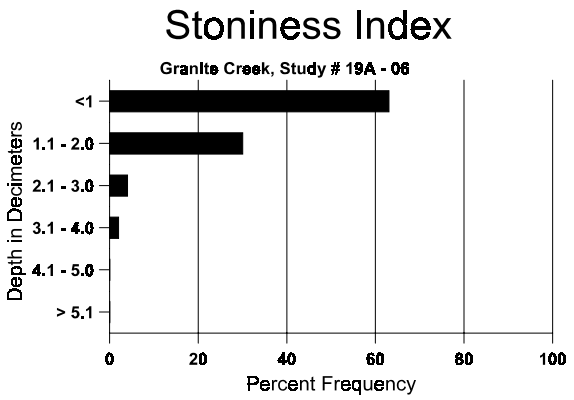
Type	Species	Strip Frequency '97	Average Cover % '97
B	Artemisia tridentata vaseyana	74	12.98
B	Chrysothamnus viscidiflorus viscidiflorus	7	.06
B	Eriogonum microthecum	6	.01
B	Mahonia repens	78	7.68
B	Opuntia spp.	1	-
B	Pinus monophylla	0	3.15
B	Symphoricarpos oreophilus	4	1.48
B	Tetradymia canescens	3	.18
Total for Browse		173	25.54

BASIC COVER --
Herd unit 19A, Study no: 6

Cover Type	Nested Frequency '97	Average Cover % '83	'89	'97
Vegetation	357	1.00	21.75	50.95
Rock	228	5.75	7.50	10.67
Pavement	235	9.50	3.25	3.26
Litter	397	67.75	58.25	52.04
Cryptogams	96	.75	0	1.71
Bare Ground	179	15.25	9.25	5.78

SOIL ANALYSIS DATA --
Herd Unit 19A, Study no: 6, Granite Creek

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
10.4	52.2 (14.1)	6.1	39.6	45.8	14.6	4.3	13.1	230.4	0.9



PELLET GROUP FREQUENCY --
Herd unit 19A, Study no: 6

Type	Quadrat Frequency '97
Deer	21

BROWSE CHARACTERISTICS --
Herd unit 19A, Study no: 6

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	9	-	-	1	-	-	1	-	-	11	-	-	-	366			11
	97	4	1	-	-	-	-	-	-	-	5	-	-	-	100			5
Y	83	3	-	-	-	-	-	-	-	-	3	-	-	-	100			3
	89	14	-	-	-	-	-	-	-	-	14	-	-	-	466			14
	97	7	1	-	-	-	-	-	-	-	8	-	-	-	160			8
M	83	28	18	-	-	-	-	-	-	-	41	1	4	-	1533	21	28	46
	89	34	9	1	2	-	-	-	-	-	39	5	2	-	1533	23	28	46
	97	65	13	1	-	-	1	-	-	-	66	-	14	-	1600	29	42	80
D	83	9	24	-	-	-	-	-	-	-	9	1	18	5	1100			33
	89	34	10	-	-	-	-	-	-	-	39	-	3	2	1466			44
	97	27	3	3	1	-	-	-	-	-	19	-	2	13	680			34
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	820			41

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	51%	00%	33%	+21%
'89	18%	.96%	07%	-30%
'97	14%	04%	24%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	2733	Dec:		40%
'89	3465			42%
'97	2440			28%

Chrysothamnus viscidiflorus viscidiflorus																		
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	4	-	-	-	-	-	-	-	-	4	-	-	-	133			4
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	83	1	-	-	-	-	-	-	-	-	1	-	-	-	33	14	14	1
	89	2	-	-	-	-	-	-	-	-	2	-	-	-	66	11	12	2
	97	9	-	-	-	-	-	-	-	-	9	-	-	-	180	17	19	9

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+83%
'89	00%	00%	00%	-10%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	33	Dec:		-
'89	199			-
'97	180			-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Eriogonum microthecum																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	10	-	-	-	-	-	-	-	-	10	-	-	-	333			10
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	83	17	-	-	-	-	-	-	-	-	17	-	-	-	566	7	8	17
	89	16	-	-	4	-	-	-	-	-	20	-	-	-	666	6	5	20
	97	6	-	-	2	-	-	-	-	-	8	-	-	-	160	9	9	8
D	83	1	-	-	-	-	-	-	-	-	-	1	-	-	33			1
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+42%
'89	00%	00%	00%	-83%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	599	Dec:	6%
	'89	1032		3%
	'97	180		0%

Mahonia repens																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
Y	83	281	-	-	-	-	-	-	-	-	281	-	-	-	9366			281
	89	557	-	-	4	-	-	-	-	-	561	-	-	-	18700			561
	97	134	-	-	-	-	-	-	-	-	134	-	-	-	2680			134
M	83	454	-	-	-	-	-	-	-	-	434	20	-	-	15133	5	6	454
	89	609	-	-	26	-	-	78	-	-	713	-	-	-	23766	5	7	713
	97	1399	-	-	26	-	-	15	-	-	1417	15	-	-	28800	4	5	1440

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+42%
'89	00%	00%	00%	-26%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	24499	Dec:	-
	'89	42466		-
	'97	31480		-

Opuntia spp.																		
M	83	1	-	-	-	-	-	-	-	-	1	-	-	-	33	5	4	1
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33	7	9	1
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40	-	-	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+ 0%
'89	00%	00%	00%	+18%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	33	Dec:	-
	'89	33		-
	'97	40		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Pinus monophylla																		
M	83	-	-	-	1	-	-	-	-	-	1	-	-	-	33	67	98	1
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33	71	79	1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+ 0%
'89	00%	00%	00%	
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	33	Dec:	-
	'89	33		-
	'97	0		-

Symphoricarpos oreophilus																		
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	1	-	-	1	-	-	-	33	10	9	1
	97	1	-	-	2	-	-	-	-	-	3	-	-	-	60	30	40	3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	
'89	00%	00%	00%	+59%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	0	Dec:	-
	'89	33		-
	'97	80		-

Tetradymia canescens																		
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	2	-	-	-	-	-	-	-	-	2	-	-	-	66	18	12	2
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20	13	24	1
D	83	2	-	-	-	-	-	-	-	-	2	-	-	-	66			2
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+33%
'89	00%	00%	00%	-39%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	66	Dec:	100%
	'89	99		0%
	'97	60		67%